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| Power BI Lab Day 2 Document | |
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Power BI LAB DOCUMENT

DAY 2- Lab 1

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| Version | Author | Comment | Reviewed By | Date |
| V 1.0 | I&D Microsoft | Initial draft | Moupiya Das |  |
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**Pre-requisites**

Installed and working Power BI Desktop setup.

**Environment Setup**

To install Power BI Desktop to your machine or to sign up for Power BI Service, Refer to [Power BI Lab Exercise Day 1](file:///D:\Users\psharm33\Documents\Power%20BI%20Lab%20Exercise%20Day%201.docx).

**Lab Overview**

This lab comprises of four tasks:

1. In the first task, you import the data from an excel sheet, data base, online services & azure services.

2. In the second task, you will edit queries using query editor.

3. In the third task, you will perform various transformations.

**Case Scenario**

The AdventureWorks Database is a sample database file which supports a fictitious, multinational manufacturing company called Adventure Works Cycles. The AdventureWorksdatabase excel sheet has 27 different sheets in total.

We will be importing 3 sheets to perform the various tasks in the Lab. We would be performing various data transformations on different types of data.

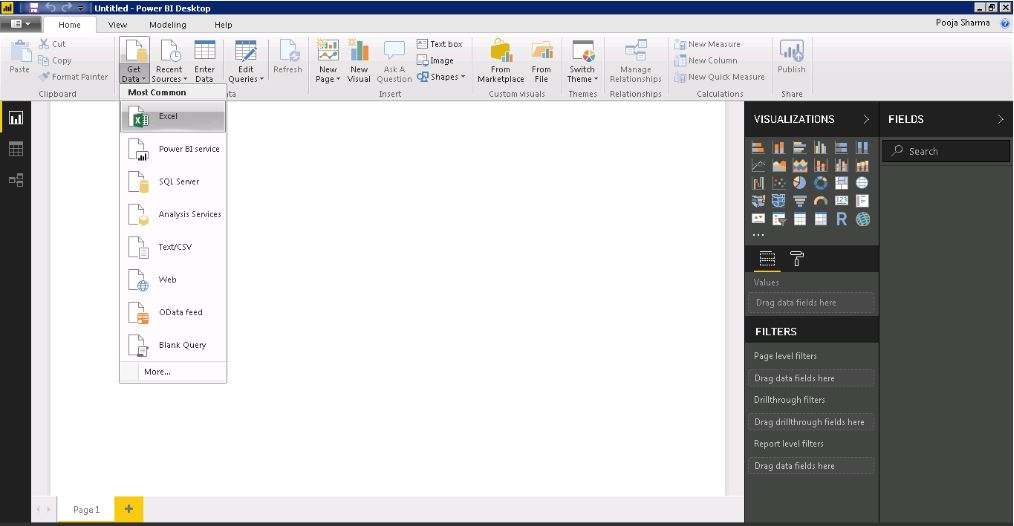
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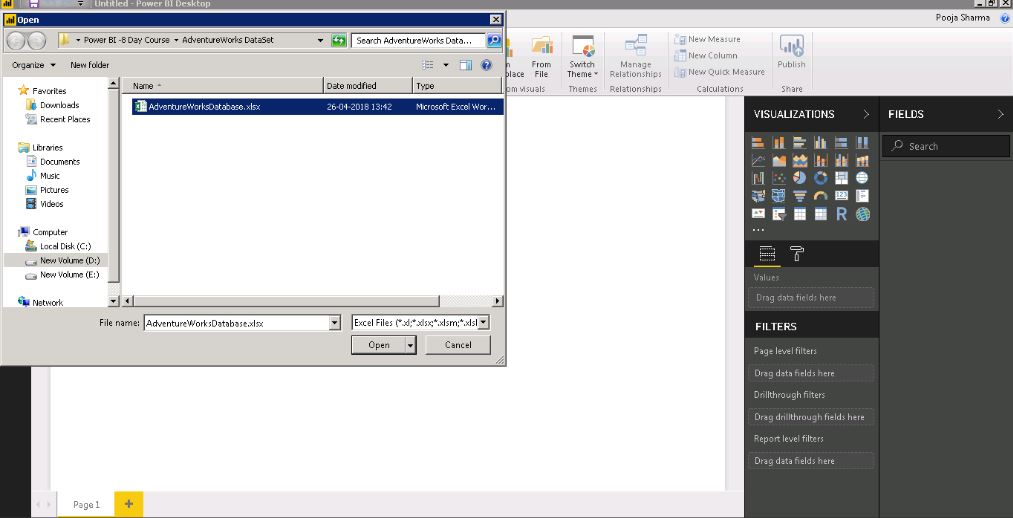
# Import Data into Power BI

1. **Excel Source:**

* Start with a blank Power BI Desktop file.
* Click on Get Data option in the ‘Home’ tab and choose Excel.

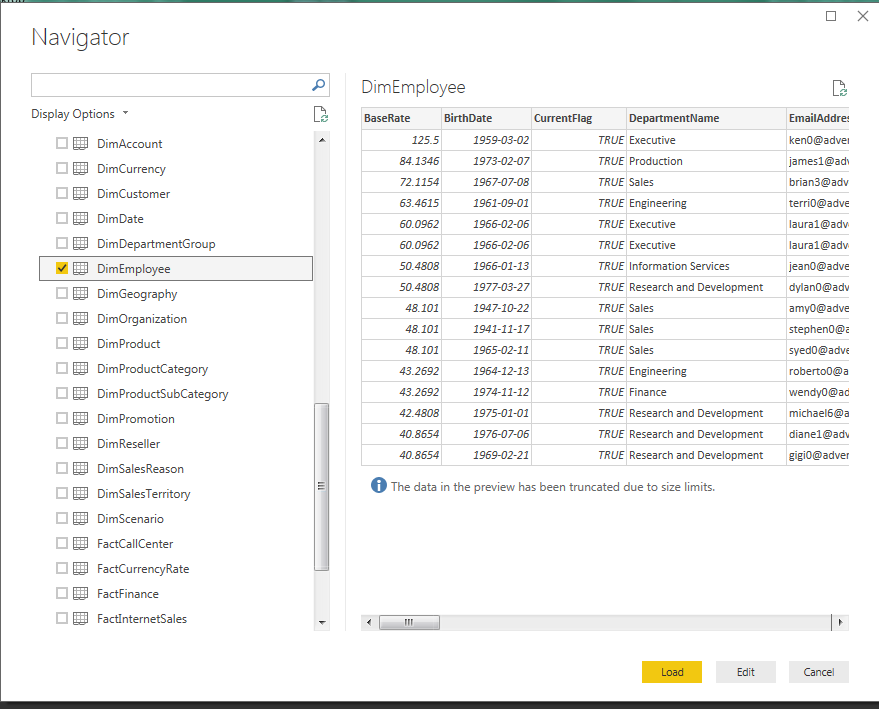


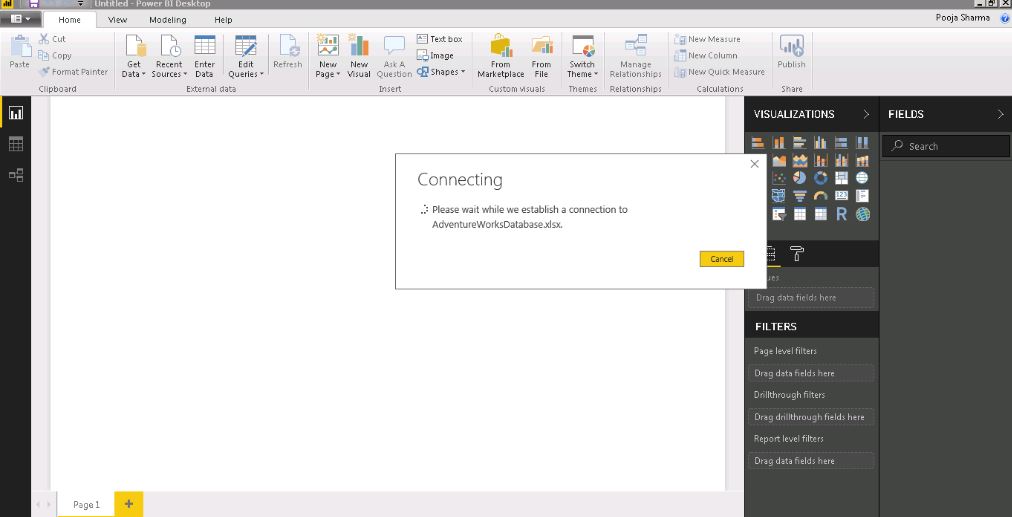
1. Select AdventureWorksDatabase, from the browse menu and click Open.



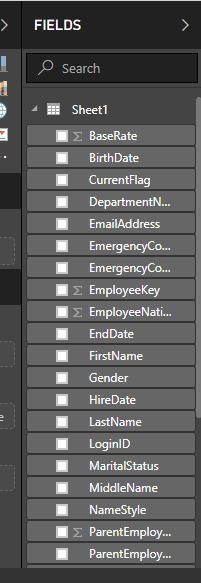
It would take a little time to connect to your database.

Select **DimEmployee** sheet to load data.



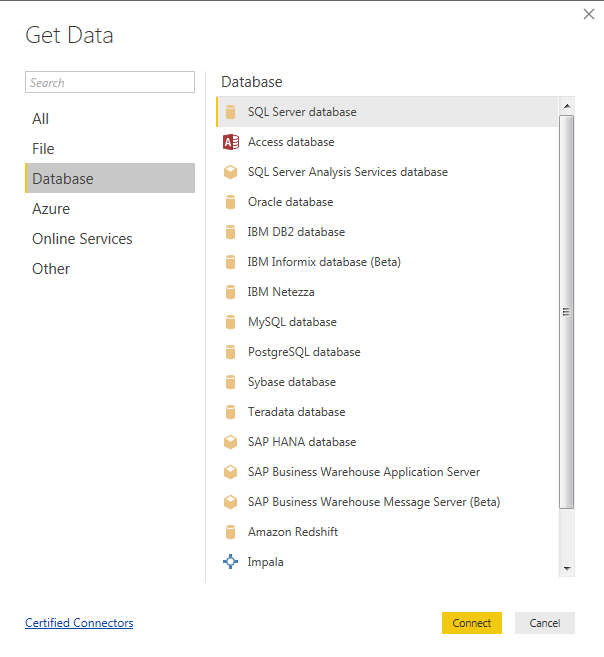


Data Set will be created as below:



**2.DataBase:**

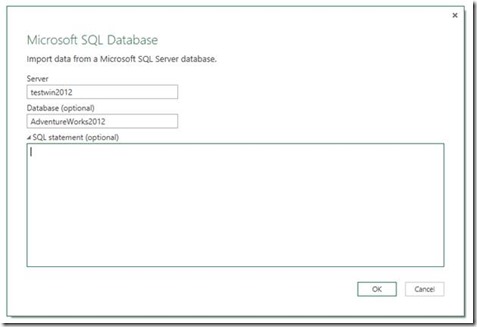
* Select Get Data and select DataBase as your source:

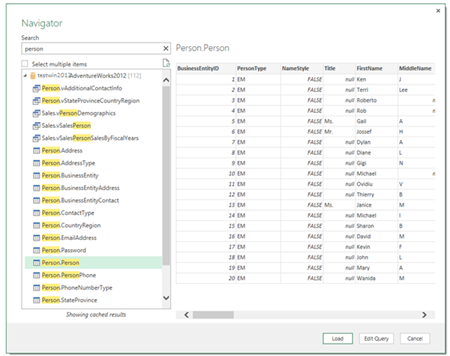


If you are on the list of all Data Sources, we want to select **SQL Server Database** and then click **Connect**.

You will then see a screen to enter the SQL Server name and the Database name. This would be where the data is going to come from.

*[](https://powerbicdn.azureedge.net/mediahandler/blog/legacymedia/clip_5F00_image006_5F00_663EAD9E.jpg)*

*[](https://powerbicdn.azureedge.net/mediahandler/blog/legacymedia/clip_5F00_image008_5F00_15FC561E.jpg)*

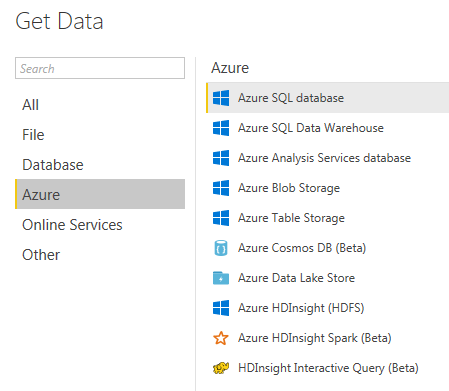
*[](https://powerbicdn.azureedge.net/mediahandler/blog/legacymedia/clip_5F00_image009_5F00_5EB5CEE2.png)*

Once you have selected the item, click **Load**. This will pull the data into the Data Model.

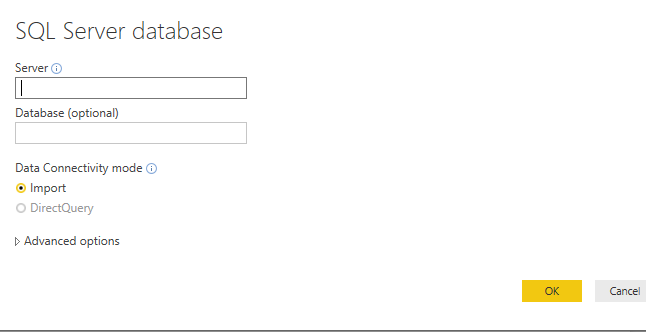
*[](https://powerbicdn.azureedge.net/mediahandler/blog/legacymedia/clip_5F00_image011_5F00_69E1E9DD.jpg)*

**3.Azure Services:**

* The following image shows the **Get Data** window for **Azure**.

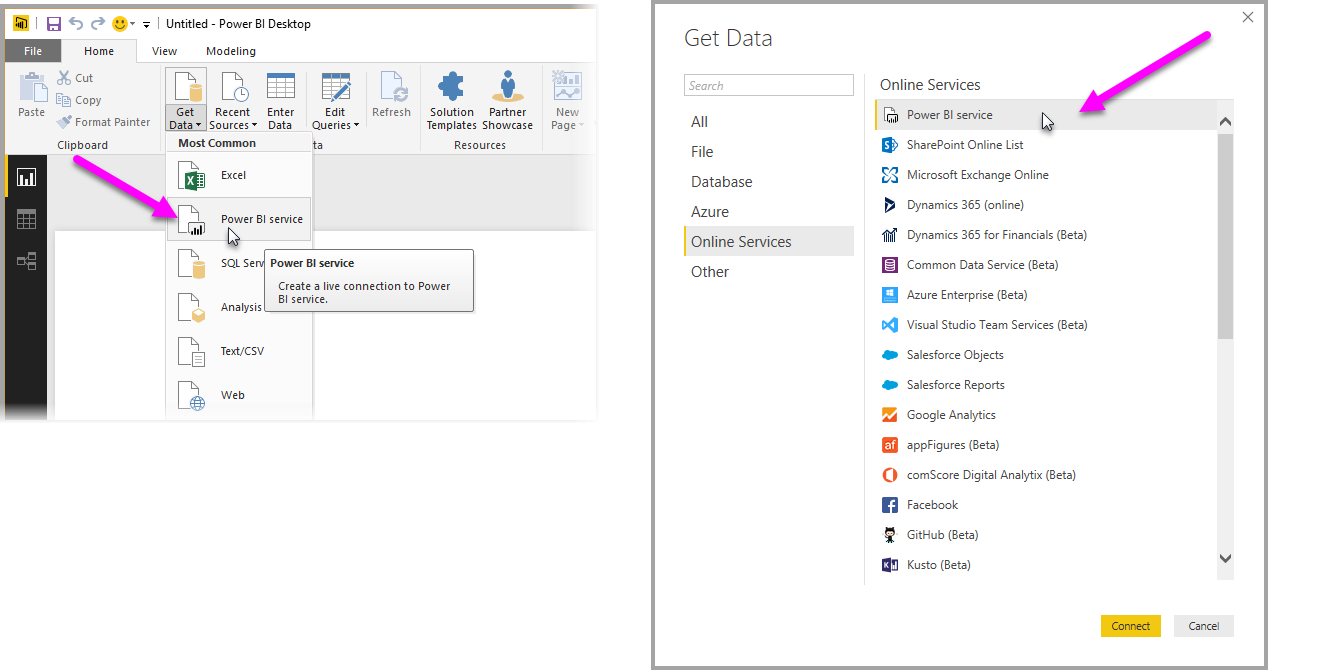
****

* You can either import data or use Direct Query to connect to azure database.

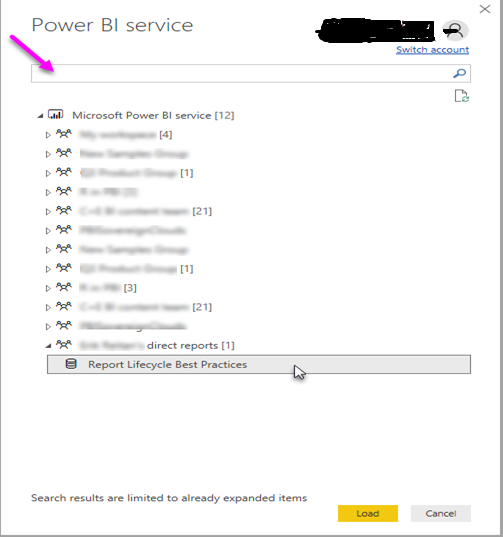


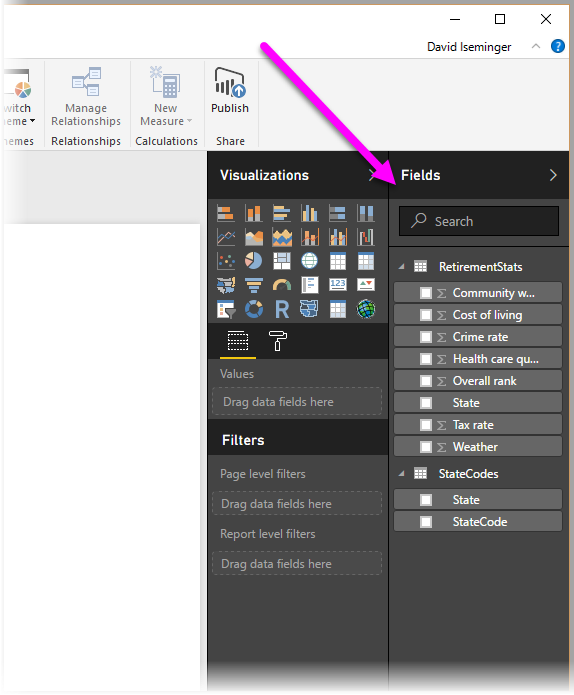
**4. Online Services:**

To establish a connection to the published report, and create your own report based on the published dataset, select **Get Data** from the **Home** ribbon in **Power BI Desktop**, and select **Power BI service**. You can also select it from **Get Data > Online Services > Power BI service**.



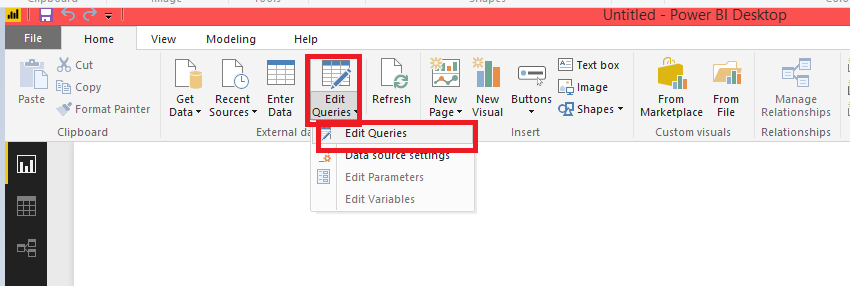
When you select **Load** from the window, you establish a live connection to the selected dataset, which means the data you see (the fields, and their values) are loaded into **Power BI Desktop** in real time.





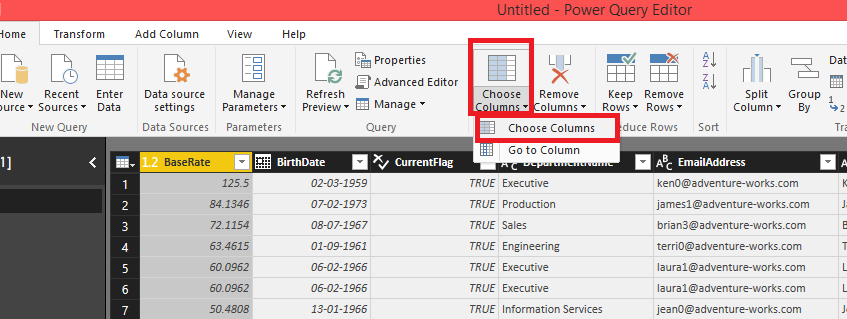
**2.Data Transformations in Power BI:**

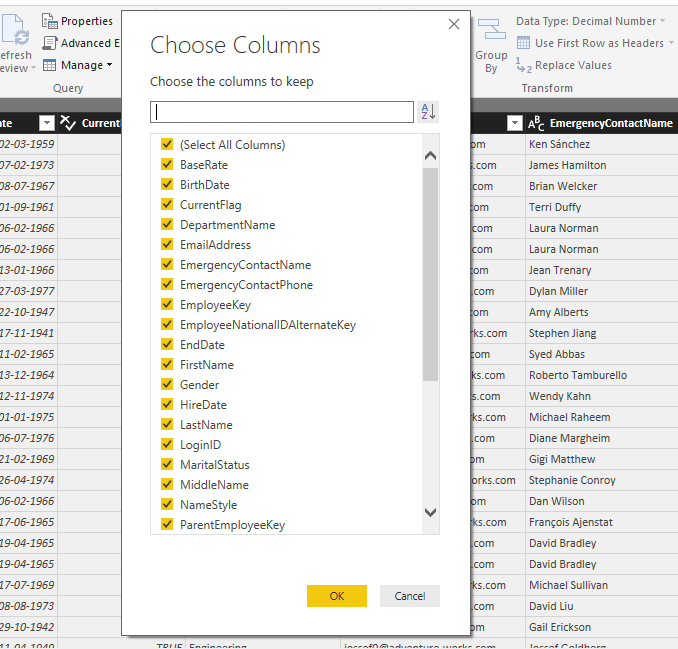
* **Import the DimEmployee, FactInternetSales, DimProductSubcategory data from the excel sheet as shown in Step 1 of Importing Data From Excel.**
* Open the query editor as shown below for doing all the transformations:



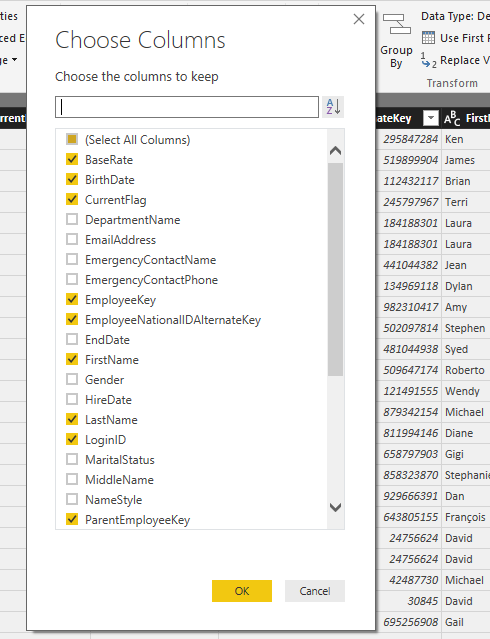
**1. Choose Columns:**

* Select Choose Column from the menu bar above :

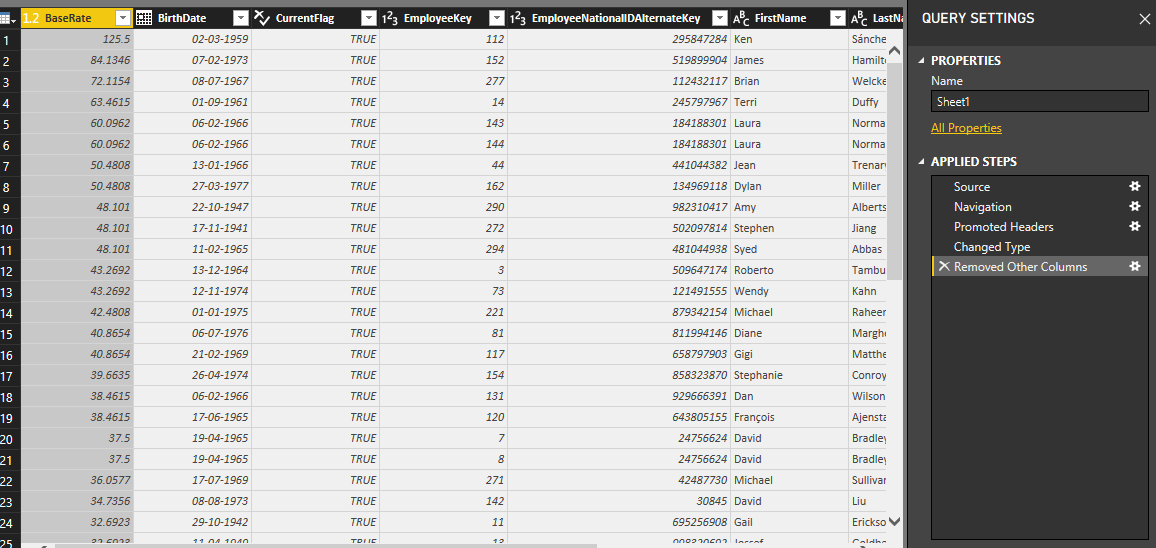




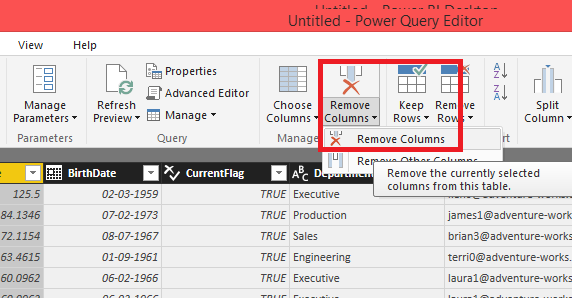
* Choose Selected Columns :



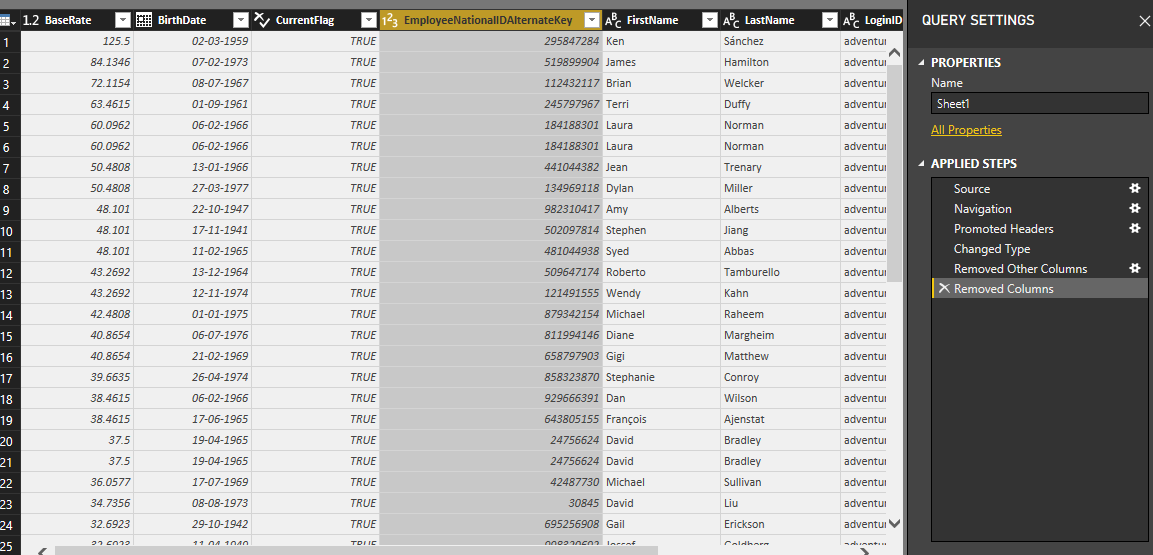
The result would be:



**2. Remove Columns:**

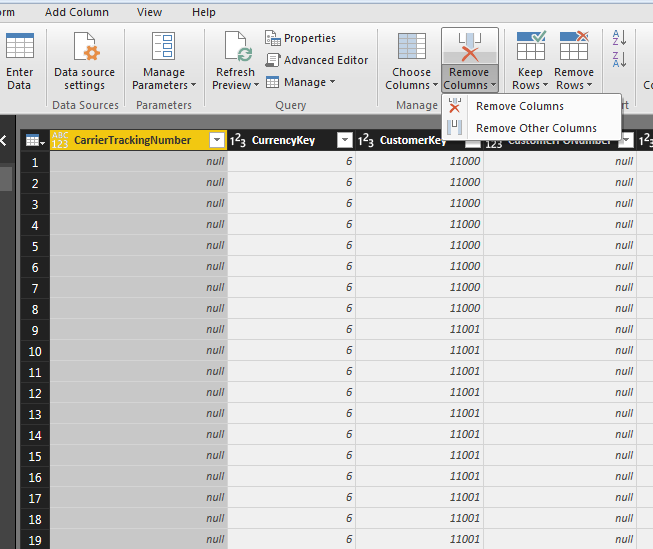


* Selecting Employee Key Column to be removed:
* The column does not appear as shown below:



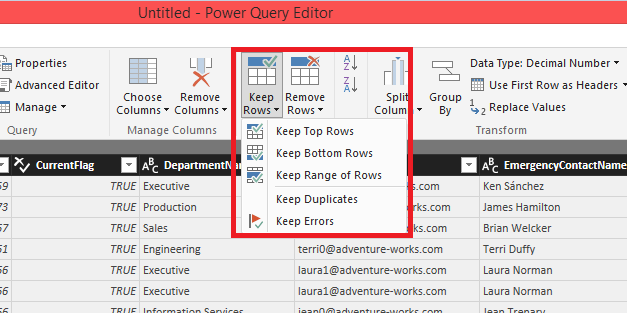
* Now,let's look at another example of a Fact Table:
* Take **FactInternetSales** dataset.

* Now we do not need all the columns from the fact table.
* So let's remove the columns "CarrierTrackingNumber", "PromotionKey", "RevisionNumber".
* Select the column "CarrierTrackingNumber","PromotionKey", "RevisionNumber" and then click Remove Columns.

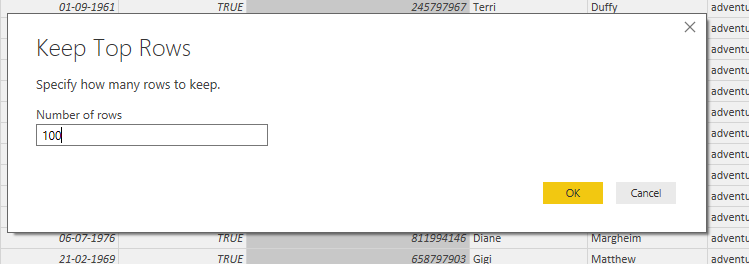


* The columns are removed.

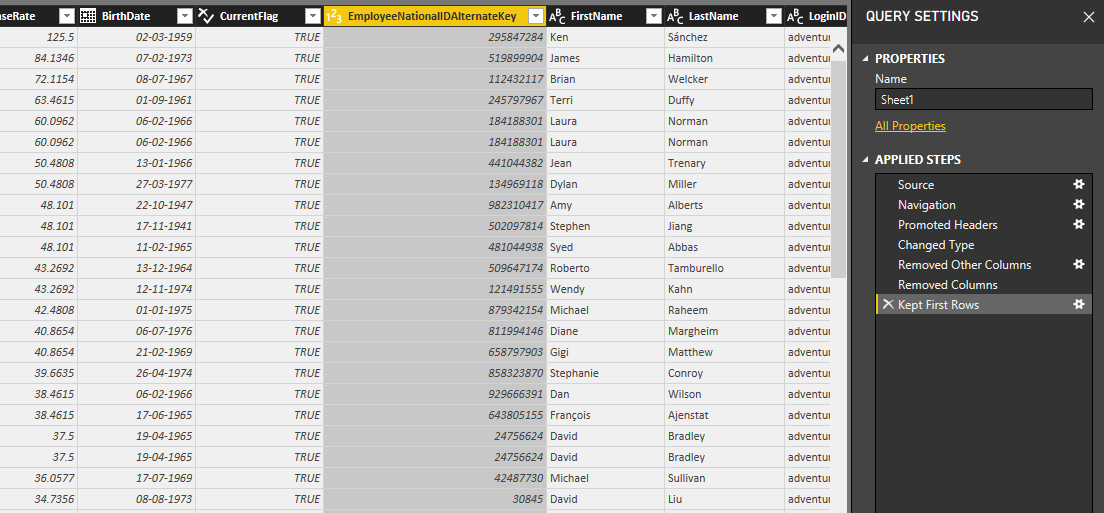
**3. Keep Rows:**



* Selecting Keep top rows, we get:



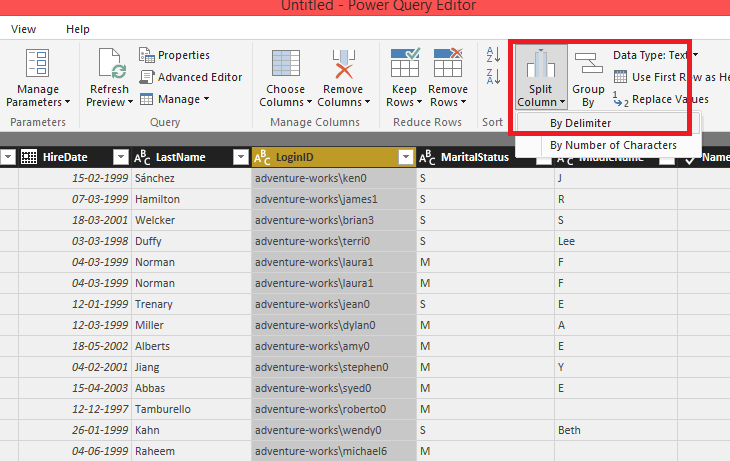
* The top 100 Rows remain.



**4. Split Column:**

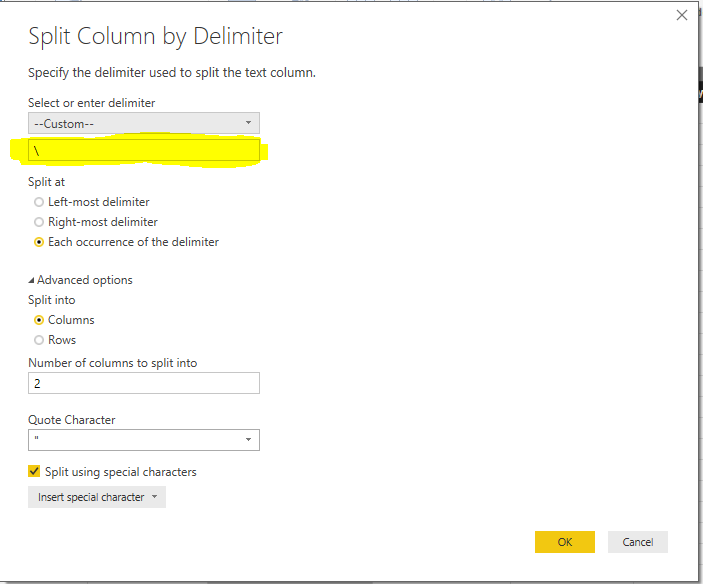
* If we need to split the login ID column into to domain name and user id, follow the below steps:

i. Select the column to be split and choose Split Column by Delimiter:

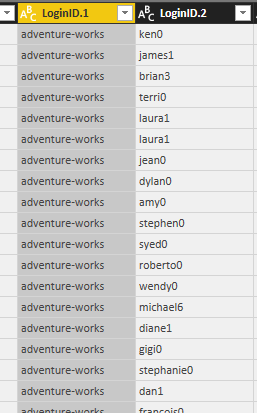


ii. The following dialogue box appears.

Enter the Delimiter '\'

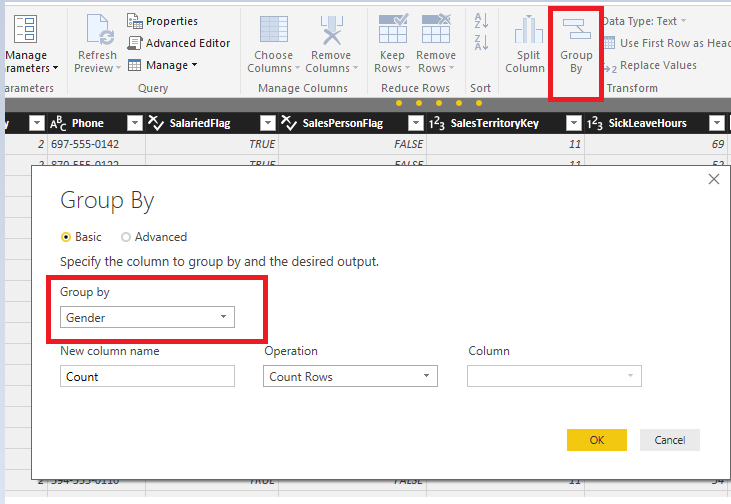


iii. Now as we can see the **LoginID** column has been split into 2 different columns

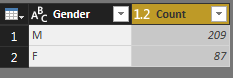


**5. Group By:**

* In this we have Group by Gender:



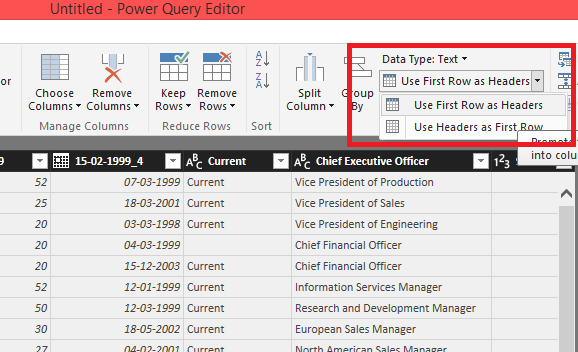
The results are as below:



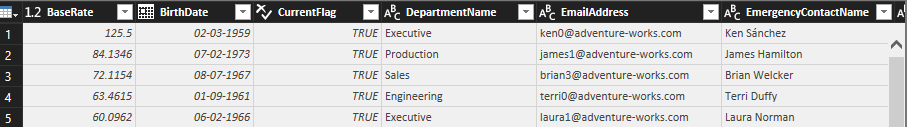
The transformations from 1-5 are attached below:



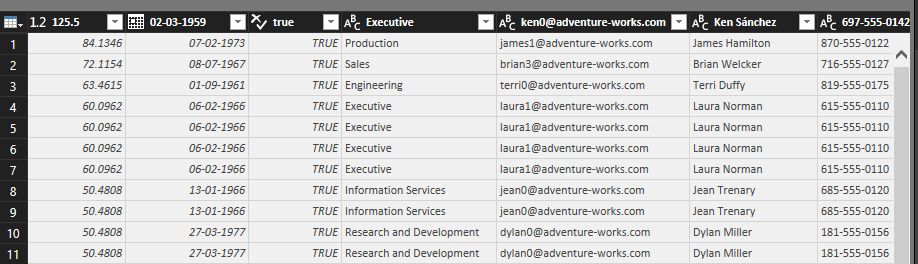
**6. Use First Rows as Headers:**

* Import DimEmployee as shown in Section 1.

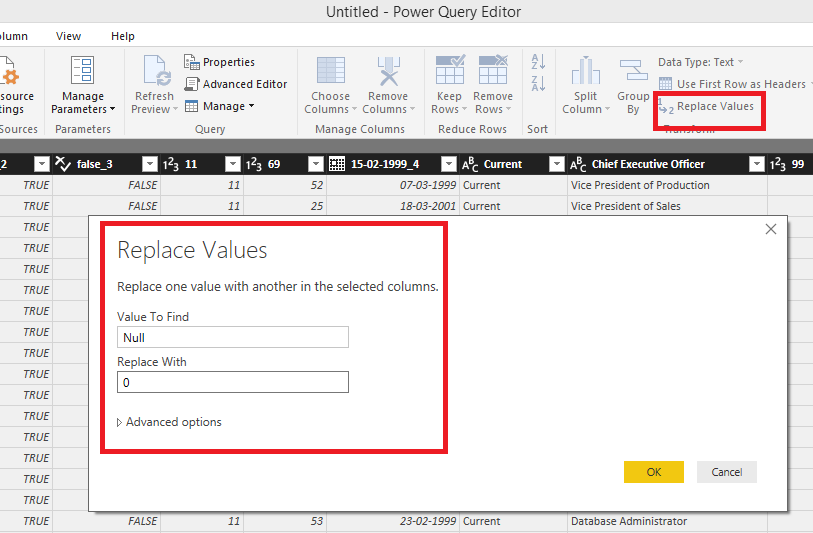
Before applying transformation the headers are as follows:



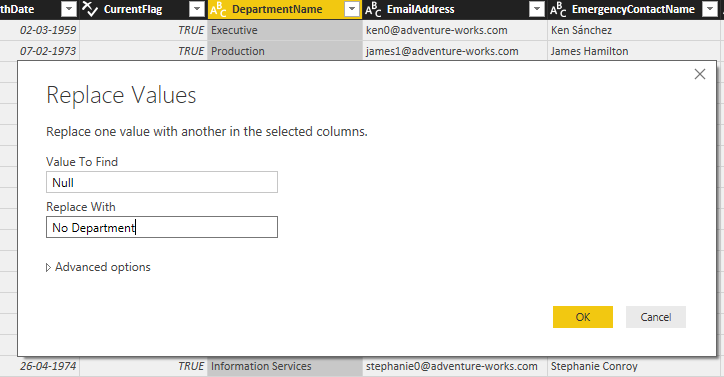
After applying transformation, the first row becomes the header:

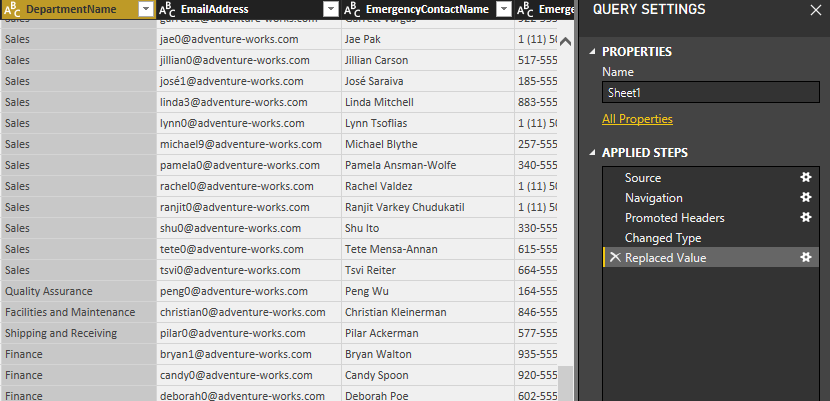


**7. Replace Values:**

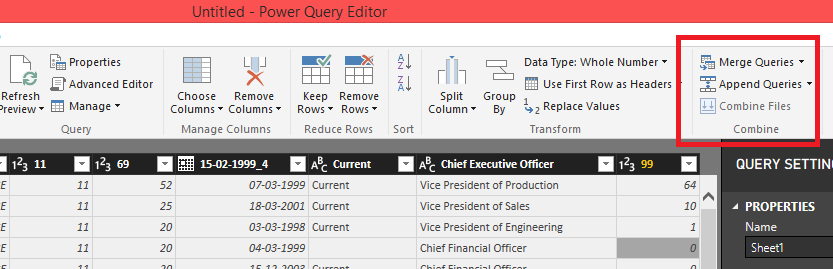


* Here we are replacing the Null values in **Department Name** column with No department:

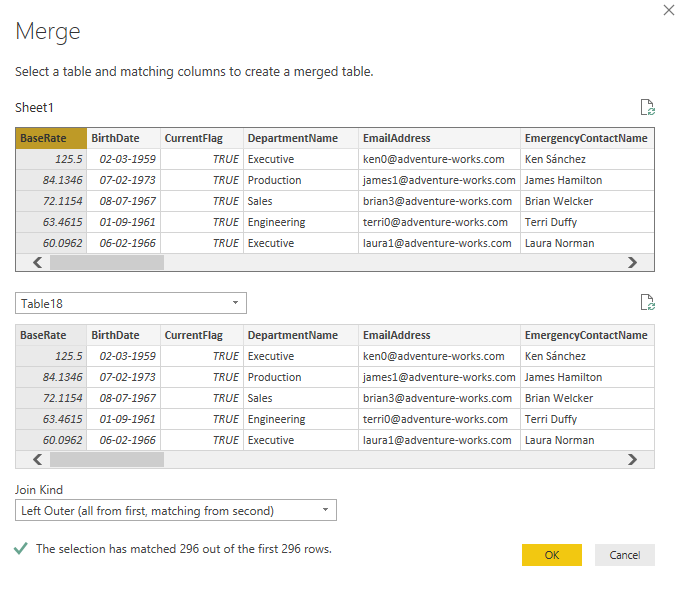


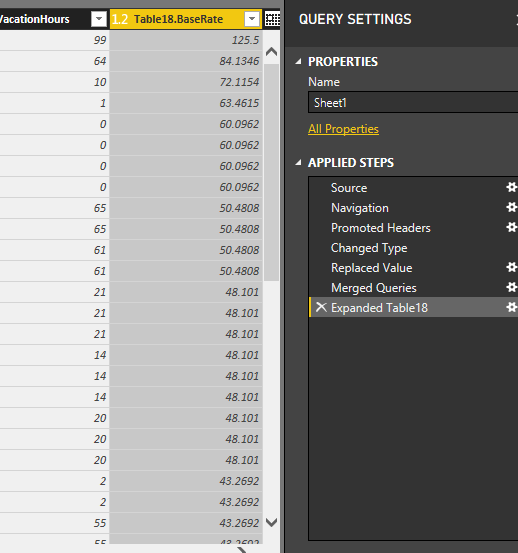


**8. Combine:**



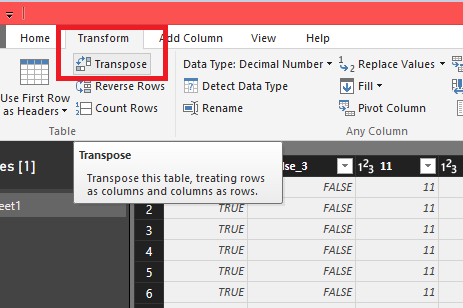
Now apply merge transformation:



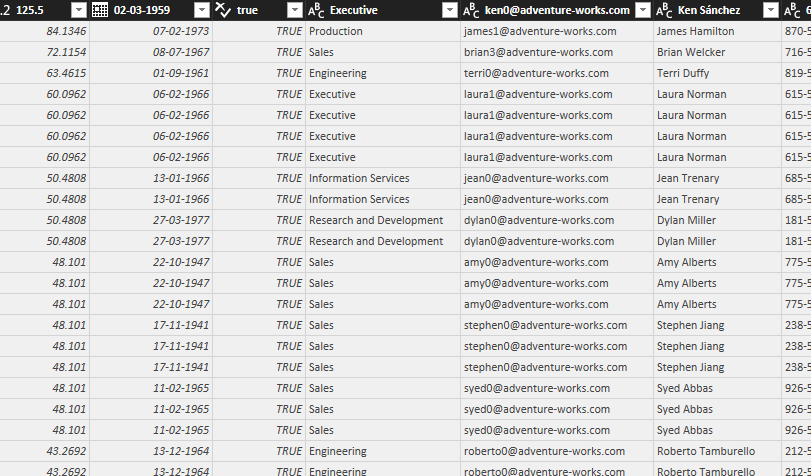
Now as you can see the column base rate has been added:

**9. Transpose:**

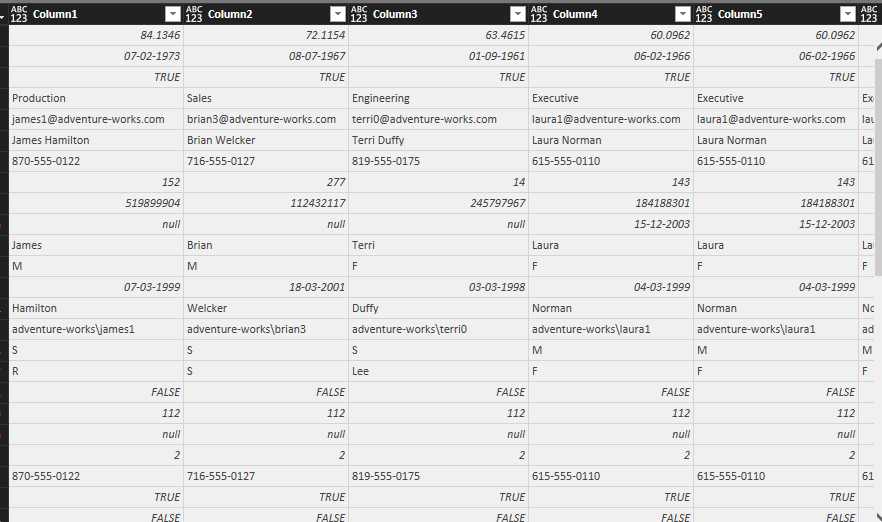
* Go in Transform tab up in the menu bar. Select Transpose.



Before applying transpose:

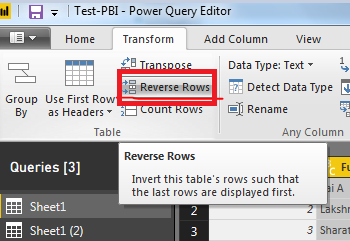


After applying:

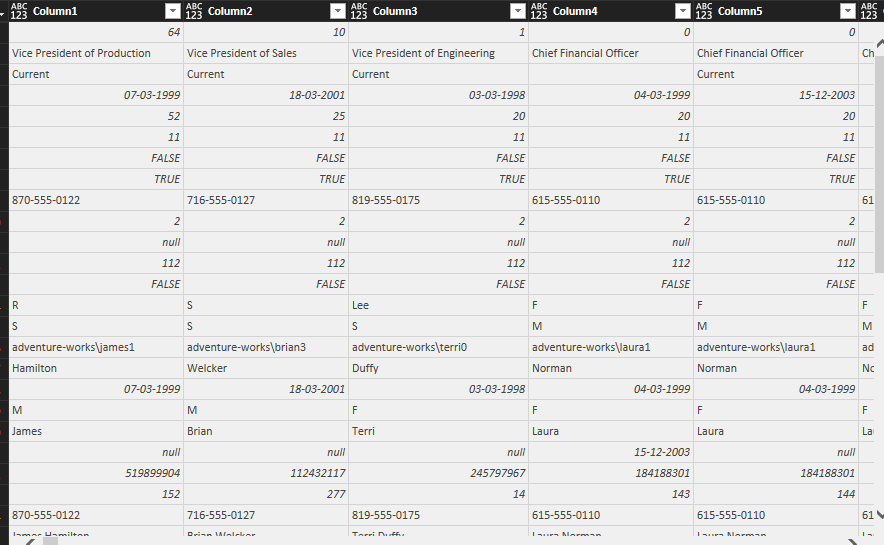


**10. Reverse Rows:**

* Select Reverse Rows from Transform tab.



After transpose and applying reverse:

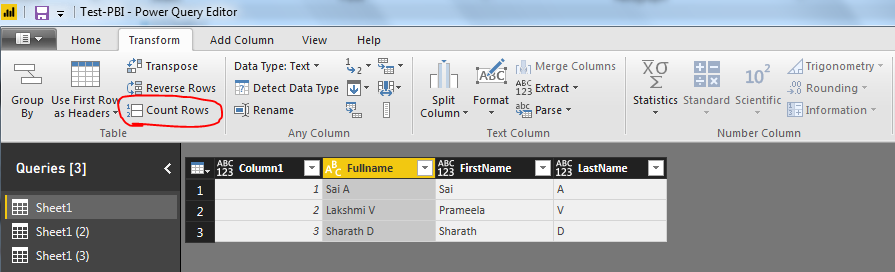


Transformation 6-10:

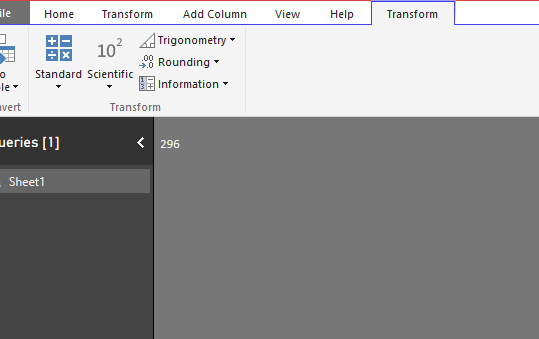


**11. Count Rows:**

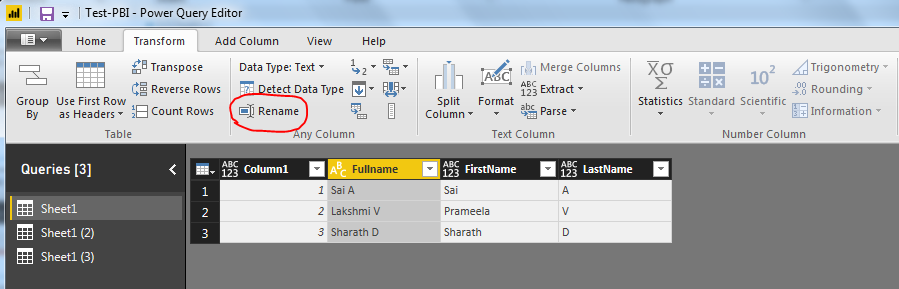
* Import **DimEmployee** as shown in Section 1.

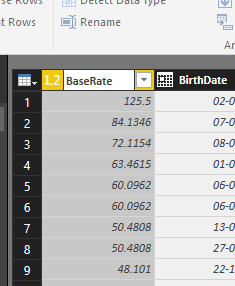


**Result:**

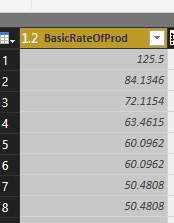


**12. Rename:**

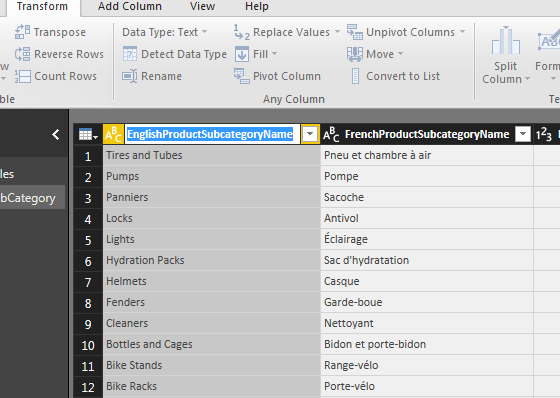
****

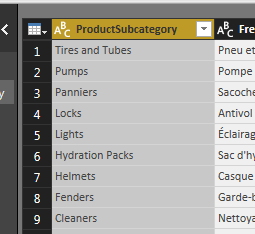


After Renaming the **BaseRate** column:



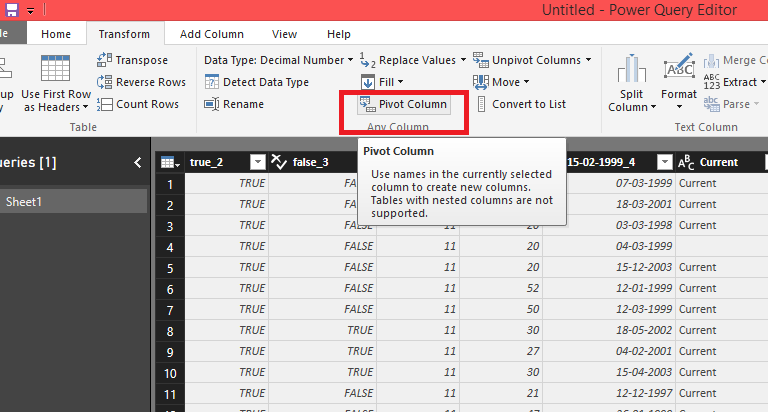
* Now,let’s take **DimProductSubcategory** data set as another example of renaming columns
* Let’s rename the column **EnglishProductSubcategoryName** to **ProductSubcategory**:



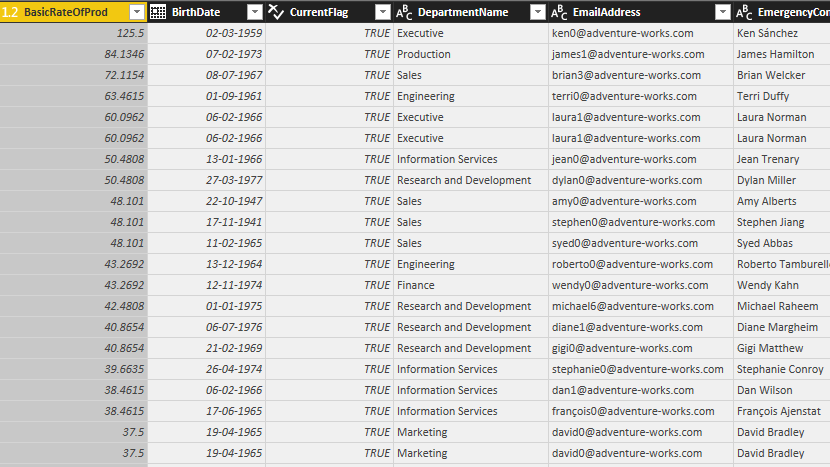


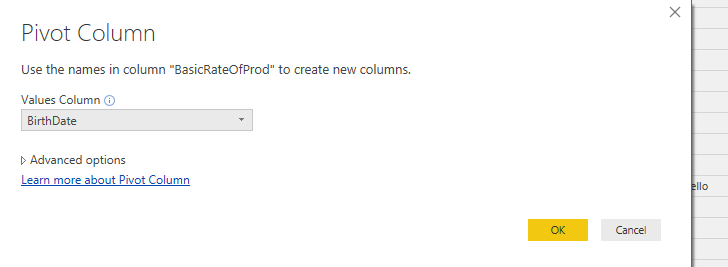
**13. Pivot Column:**

* Use Pivot Column on **BirthDate**.

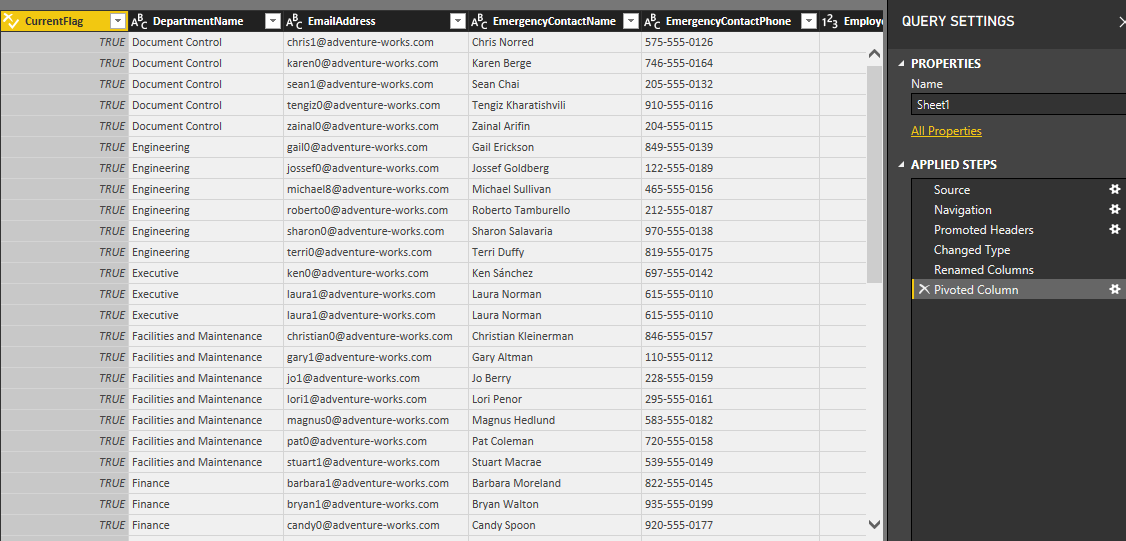


**Before:**



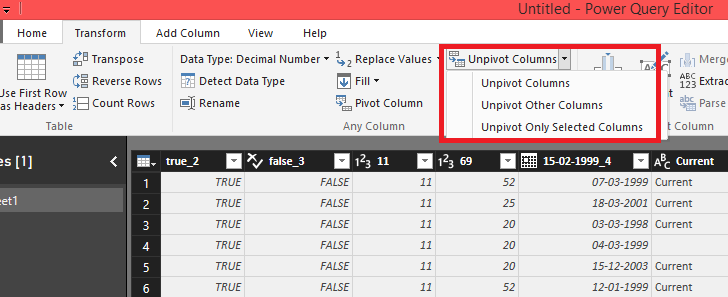


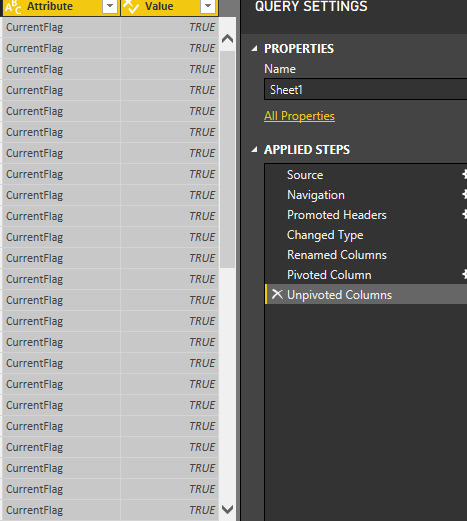
**After:**



**14. Unpivot Columns:**

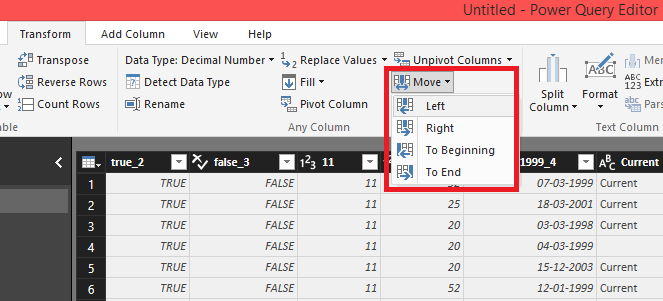
* Unpivoting the previously pivoted columns.

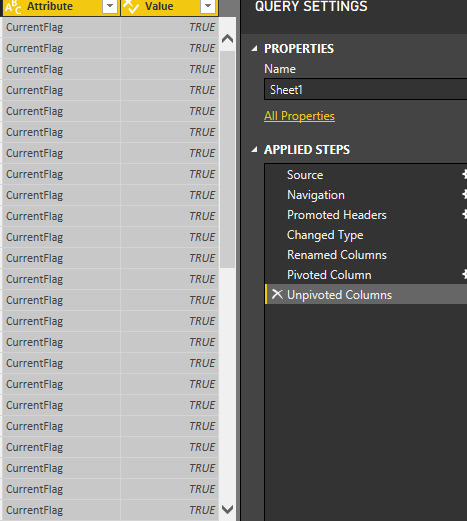




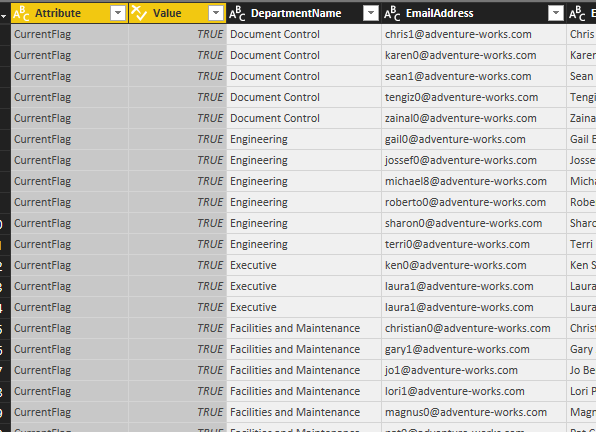
**15. Move:**

* Select a column and then Click Move and now you can move that column to any given position as shown below:

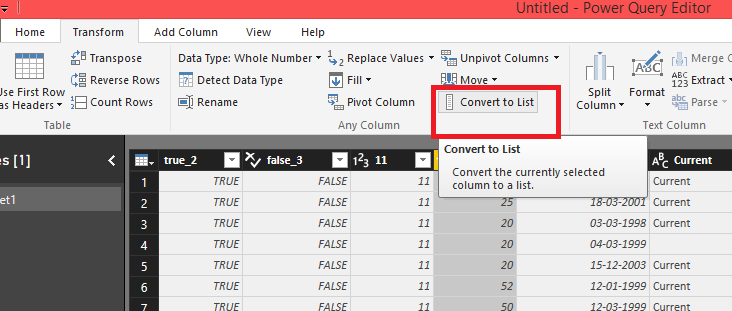




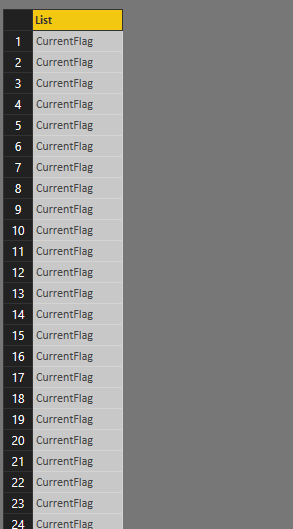
After applying move to beginning for Attribute and value:



**16. Convert to List:**



After applying Convert to list to Attribute Column:

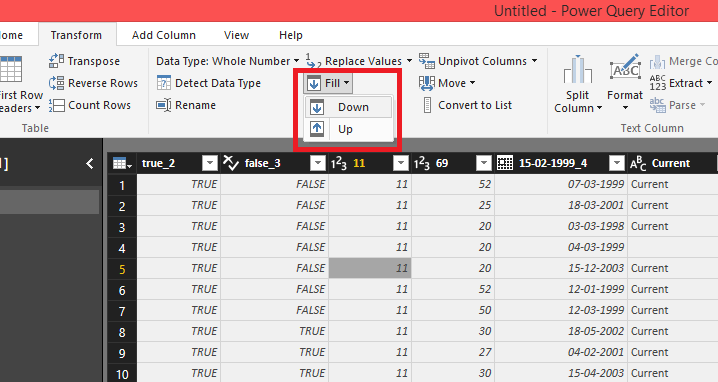


**Transformations from 11-16:**

****

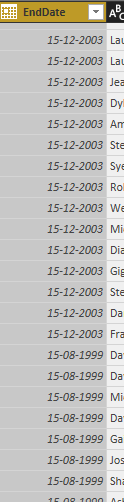
**17. Fill:**

* Import DimEmployee as shown in Section 1.
* Select the column in which you have to fill the values.

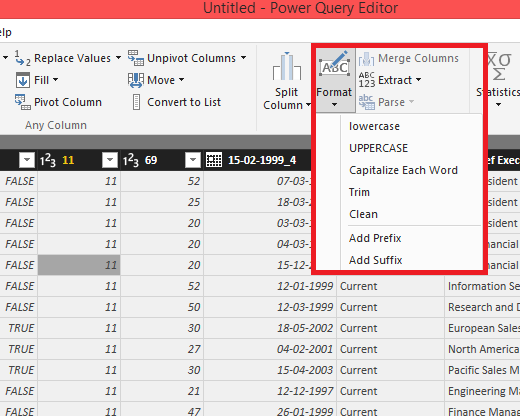




After selecting Fill Down:

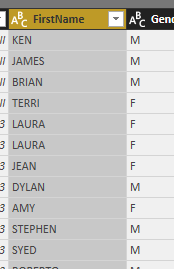


**18. Format:**

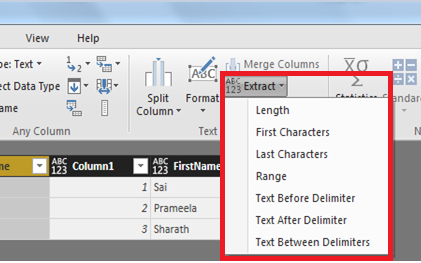




After Applying Uppercase Formatting:



**19. Extract:**

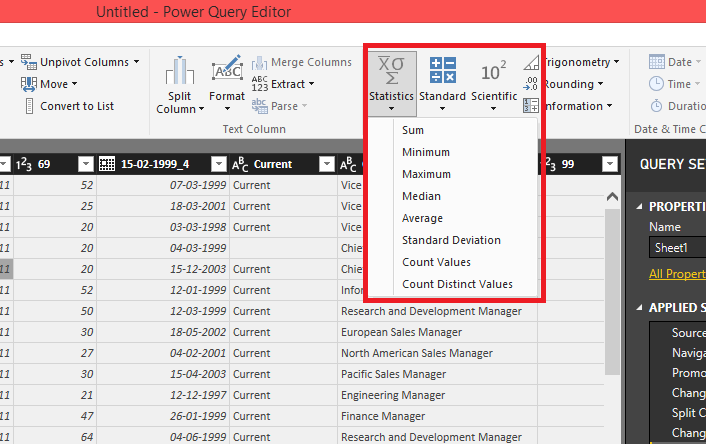


Extracting Length Of First Name:



**20. Statistics:**

* Perform statistical operations like Sum, Minimum, Maximum, etc. as shown below:

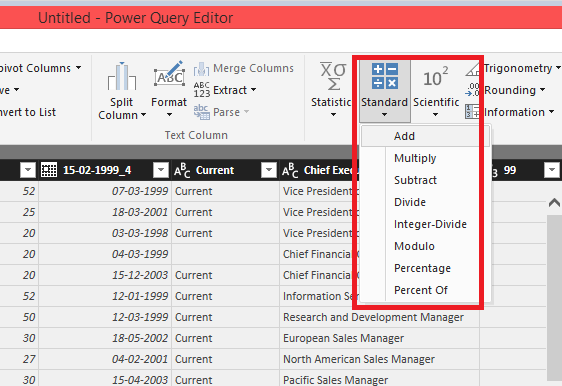


Calculating Minimum Of BaseRate:

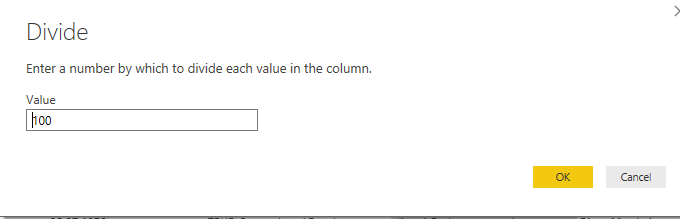


**21. Standard:**

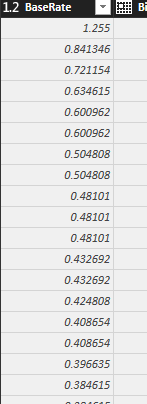
* Perform basic math operations.



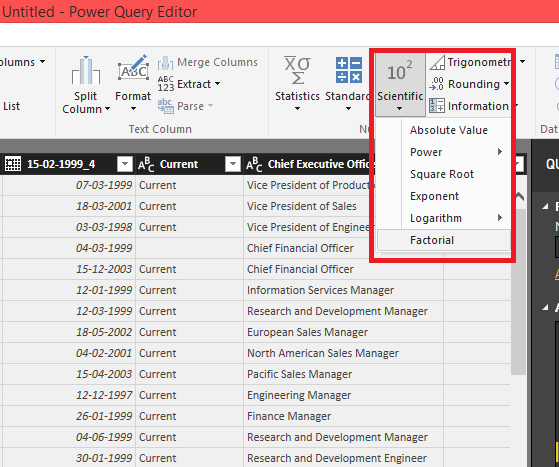
**Dividing Base Rate column by 100:**



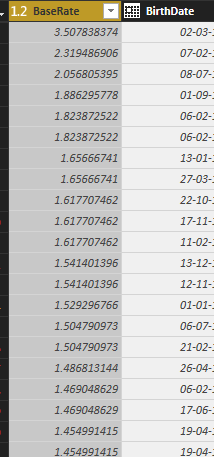
**Result:**



**22. Scientific:**



Calculating Exponent of Base Rate Column:

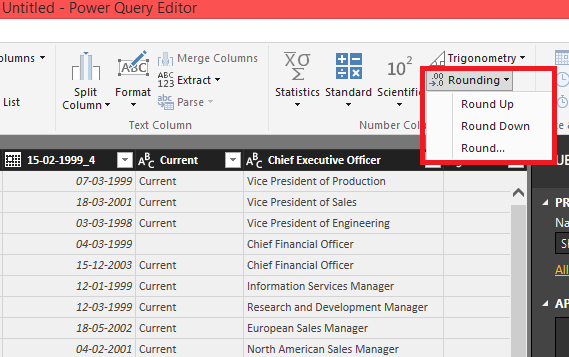


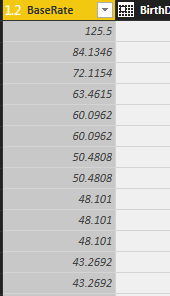
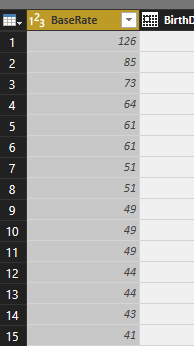
Transformation 17-22:



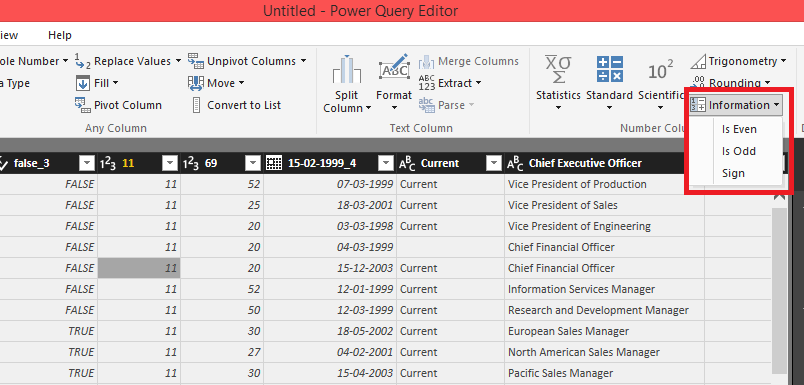
**23. Rounding:**

* Import DimEmployee as shown in Section 1.

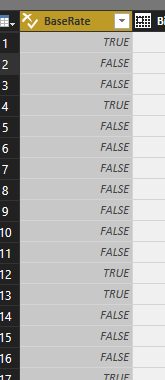


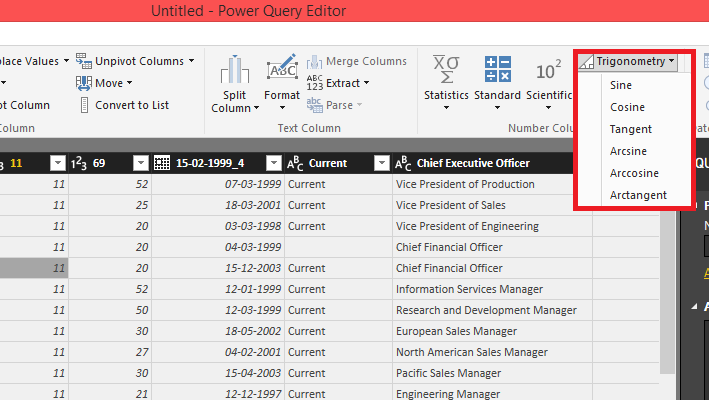
**24. Information:**

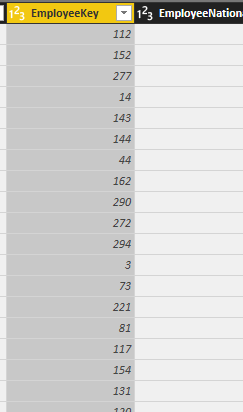


If Base Rate Information is selected to Is even:

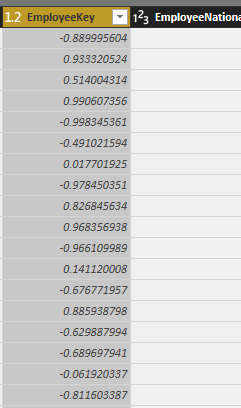


**25.** **Trigonometry:**

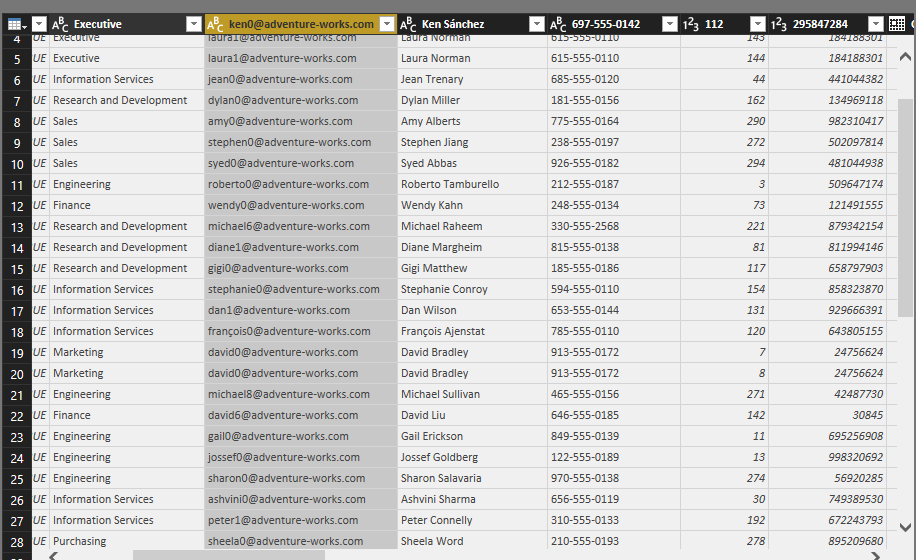




After Calculating Sine :

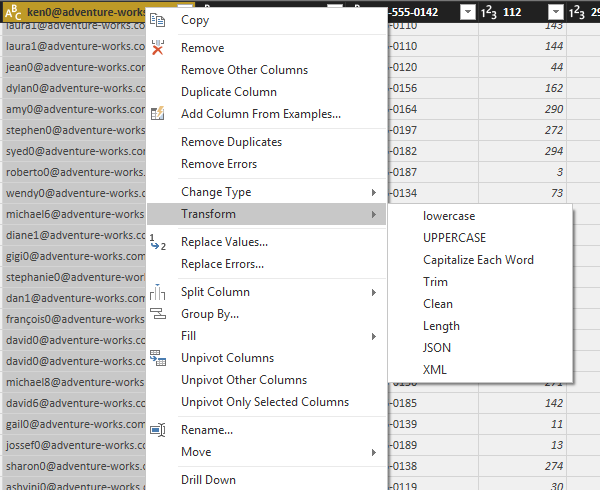


**26. Transform:**



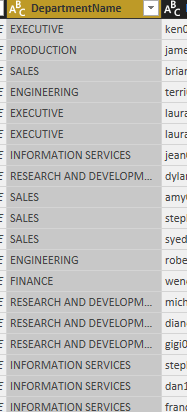
* Right Click on the column Header and a dialogue box will appear,further select transform and the transformation options will be displayed as shown below:

1. For Columns of String Data type :

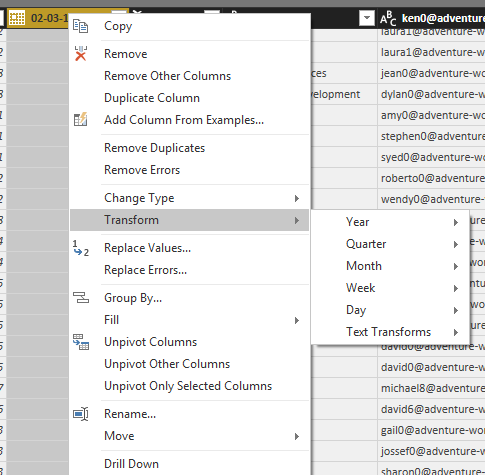




After applying Uppercase transformation on Department Column:

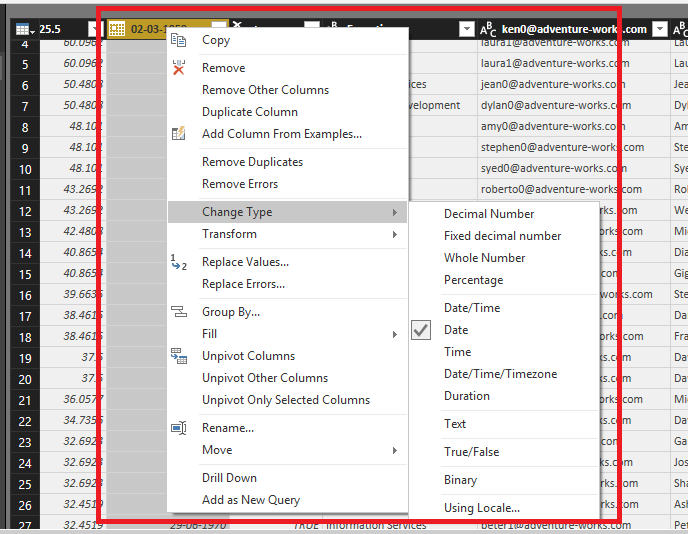


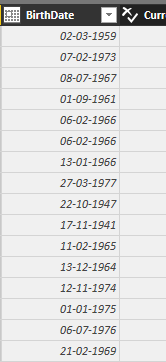
1. For Columns of Date data type:



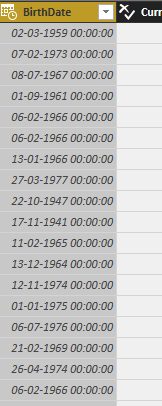
**27. Change Type:**

* Step 1 : same as above and then select Change Type:



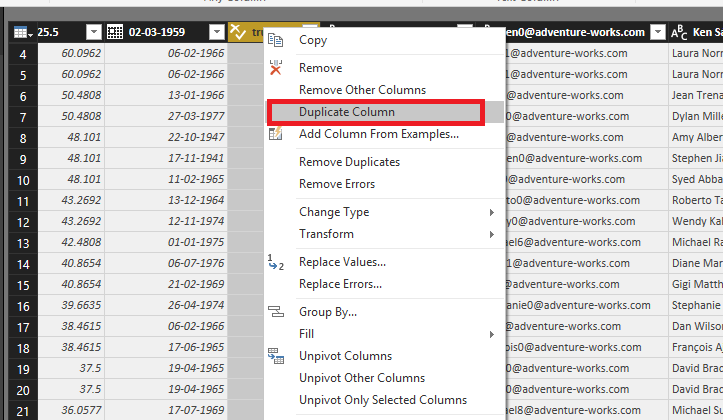


**After applying Date/Time Type to the Birth date column:**

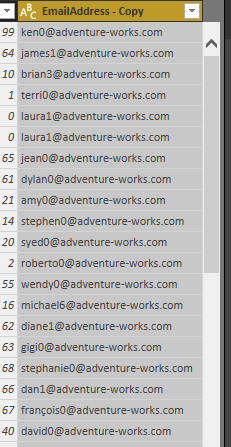


**28. Duplicate Column:**

* Step 1 as above and then select Duplicate Column.



After applying Duplicate Column to email id:



Transformations 23-28:



**Summary**

In this Lab exercise, we have learnt:

* To import data from an Excel File, Database, Online Services, Azure Services.
* To use query editor.
* To use various data transformations.